

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. - 41. (Canceled)

42. (Previously Presented) An exposure method for exposing on an object a pattern having linear features extending along orthogonal first and second directions, said method comprising:

providing a light source having decreased intensity portions at a center thereof and on first and second axes defined to intersect with each other at the center and defined along the first and second directions, respectively by a shaping optical system including at least a movable optical element and an exchangeable optical element; and

illuminating the pattern with light from the light source.

43. (Previously Presented) A method according to claim 42, wherein the intensity at each decreased intensity portion is decreased to about zero.

44. (Previously Presented) A method according to claim 42, wherein the light source comprises four sections having substantially the same light intensity and being distributed in four quadrants defined by the center and the first and second axes, and wherein the four sections are disposed in an angularly symmetrical relationship with respect to the center.

45. (Previously Presented) A method according to claim 44, wherein the intensity at each decreased intensity portion is decreased to about zero.

46. (Previously Presented) A method according to claim 42, wherein the light source is provided by light from one of a lamp and a laser.

47. (Previously Presented) In a microdevice manufacturing method including a step for imaging on a workpiece a fine pattern having linear features extending along orthogonal first and second directions to print the fine pattern on the workpiece, the improvements comprising:

providing a light source having decreased intensity portions at a center thereof and on first and second axes defined to intersect with each other at the center and defined along the first and second directions, respectively by a shaping optical system including at least a movable optical element and an exchangeable optical element; and

illuminating the pattern with light from the light source.

48. (Previously Presented) A method according to claim 47, wherein the intensity at each decreased intensity portion is decreased to about zero.

49. (Previously Presented) A method according to claim 47, wherein the light source comprises four sections having substantially the same light intensity and being distributed in four quadrants defined by the center and the first and second axes, and wherein the four sections are disposed in an angularly symmetrical relationship with respect to the center.

50. (Previously Presented) A method according to claim 49, wherein the intensity at each decreased intensity portion is decreased to about zero.

51. (Previously Presented) A method according to claim 47, wherein the light source is provided by ultraviolet light from one of a mercury lamp and an excimer laser.

52. (Previously Presented) In a method of exposing on an object a pattern having linear features extending in orthogonal first and second directions, wherein the pattern is illuminated with light obliquely with respect to the pattern, the improvements residing in that:

the strength of illumination of the pattern in a first plane of incidence including the first direction and the strength of illumination of the pattern in a second plane of incidence including the second direction are made lower than that in a third plane of incidence other than the first and second planes by a shaping optical system including at least a movable optical element and an exchangeable optical element.

53. (Previously Presented) A method according to claim 52, wherein, in each of the first plane of incidence and the second plane of incidence, the illumination of the pattern with light is substantially blocked.

54. (Previously Presented) A method according to claim 52, wherein the predetermined plane of incidence is defined with an angle of about 45 degrees with respect to one of the first plane of incidence and the second plane of incidence.

55. (Previously Presented) In a method of manufacturing microdevices wherein a fine pattern having linear features extending in orthogonal first and second directions is illuminated with light obliquely with respect to the pattern and wherein the illuminated pattern is imaged and printed on a workpiece, the improvements residing in that:

the strength of illumination in a predetermined plane of incidence is made greater than that in a first plane of incidence including the first direction and that in a second plane of incidence including the second direction and intersecting with the first plane of incidence perpendicularly by a shaping optical system including at least a movable optical element and an exchangeable optical element.

56. (Previously Presented) A method according to claim 55, wherein, in each of the first plane of incidence and the second plane of incidence, the illumination of the pattern with light is substantially blocked.

57. (Previously Presented) A method according to claim 55, wherein the predetermined plane of incidence is defined with an angle of about 45 degrees with respect to one of the first and second directions.

58. - 69. (Canceled)

70. (Previously Presented) A method for exposing on a substrate an image of a pattern having components along orthogonal first and second directions, said method comprising:

illuminating the pattern with light having increased light intensity distribution shaped by a shaping optical system including at least a movable optical element and an exchangeable optical element within four sections relative to first and second axes, the first and second axes being defined to intersect with each other at a center and defined along the first and second directions, respectively; and

projecting the image of the pattern on the substrate.

71. (Previously Presented) A method for exposing on a substrate an image of a pattern having components along orthogonal first and second directions, said method comprising:

illuminating the pattern with light having increased light intensity distribution shaped by a shaping optical system including at least a movable optical element and an exchangeable optical element relative to, and within areas outside of, a cross-like portion defined to intersect at a center and defined along the first and second directions; and

projecting the image of the pattern on the substrate.

72. (Previously Presented) An exposure method for exposing on an object a pattern having features extending in a predetermined direction, characterized by:

providing a light intensity distribution having increased light intensity portions relative to a portion corresponding to a path in a plane of incidence including the predetermined direction by a shaping optical system including at least a movable optical element and an exchangeable optical element; and

illuminating the pattern.

73. (Previously Presented) A method according to claim 70, further comprising relatively moving said projected image and said substrate along an optical axis of a projection system during exposure of said substrate.

74. (Previously Presented) A method according to claim 71, further comprising relatively moving said projected image and said substrate along an optical axis of a projection system during exposure of said substrate.

75. - 89. (Canceled)

90. (Previously Presented) An exposure method for exposing on an object a pattern having features extending along orthogonal first and second directions, said method comprising:

providing a light source having decreased intensity portions at a center thereof and along first and second axes defined to intersect with each other at the center and defined along the first and second directions, respectively by a shaping optical system including at least a movable optical element and an exchangeable optical element; and

illuminating the pattern with light from the light source, wherein the light source comprises four sections having substantially the same light intensity and being distributed in four quadrants defined by the center and the first and second axes, and wherein the four sections are disposed in an angularly symmetrical relationship with respect to the center.

91. (Previously Presented) In a microdevice manufacturing method including a step for imaging on a workpiece a fine pattern having linear features extending along orthogonal first and second directions to print the fine pattern on the workpiece, the improvements comprising:

providing a light source having decreased intensity portions at a center thereof and on first and second axes defined to intersect with each other at the center and defined along the first and second directions, respectively by a shaping optical system including at least a movable optical element and an exchangeable optical element; and

illuminating the pattern with light from the light source, wherein the light source comprises four sections having substantially the same light intensity and being distributed in four quadrants defined by the center and the first and second axes, and wherein the four sections are disposed in an angularly symmetrical relationship with respect to the center.

92. (Previously Presented) A method according to claim 52, wherein the strength of illumination of the pattern along an entirety of the first direction and the strength of illumination of the pattern along an entirety of the second direction are made lower than that in the third plane of incidence.